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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/715,376

11/19/2003

Jonathan Zanhong Sun

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05/11/2006

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EXAMINER

NGUYEN, THINH T

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 05/11/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/715,376

Applicant(s)

SUN ET AL.

Examiner

Thinh T. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 2-7, 9-11 and 13-34 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1, 8 and 12 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED OFFICE ACTION

1. In response to applicant amendment on 3/7/2006 the Official Office Action issued on 8/17/2005 is withdrawn.
2. Claims 1-34 are pending in the Application

Election/Restriction

3. Applicant's election **with traverse** of group I drawn to a magnetic memory element and **Species E reads on fig 1F in the communication with the Office on 3/7/2006** is **acknowledged**.

Because Applicant did not distinctly and specifically point out the supposed error in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Applicants have the right to file a divisional, continuation or continuation-in-part application covering the subject matter of the non-elected claims.

The traversal is on the ground(s) that see the election paper. This is not found persuasive for the following reasons :

I/ For Methods and Devices Election :

A/ Applicant has not proved that the alleged materially different method alleged by the Examiner to produce the device of claim 1 is not feasible.

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B/ as evidenced by the different classification between group I (class 257 with more than 300,000 document and group II class 438 with about 200,000 documents in the Patent and patent publication of the USPTO; the search will be burdensome for the Office.

C/ moreover, because the fields of search for method and device claims are NOT coextensive and the determinations of patentability of method and device claims are different, that is process limitations and device limitations are given weight differently in determining the patentability of the claimed inventions. Also, the strategies for doing text searching of the device claims and method claims are different. Thus, separate searches are required.

II/ For Species Election .

As discussed in the previous action the examiner already point out the different species with different patentable feature illustrated by the different figures and with 8 different species with different technical features it will be burdensome for the Office

The requirement is still deemed proper and is therefore made FINAL and therefore non-elected group II inventions and non-elected species are withdrawn from consideration.

Since the Applicant fails to provide all the claims that belong the species E and that read on Fig 1F, the Examiner will try the identify those claims that belong to this species as best as it can be understood by the Examiner.

4. Upon review of all the claims and the species the Examiner identifies Species E (fig 1F) includes claim 12 with claim 1 and 8 as generic claims.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(a/b/e) that form the basis for the rejections under this section made in this office action.

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. The Examiner noted that claim 1 has some limitation recited in the preamble. A preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

7. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Chen et al. (U.S. Patent 5,917,749)

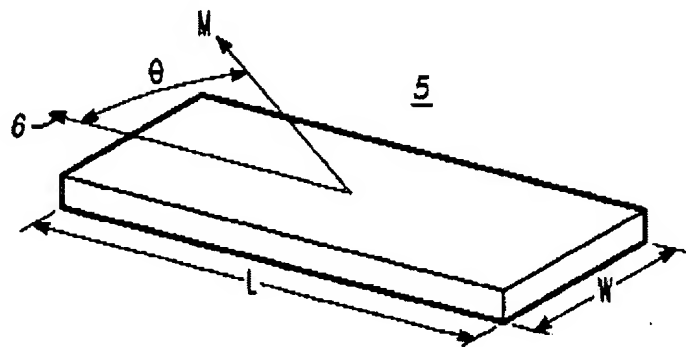
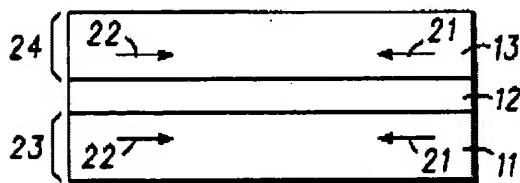
REGARDING CLAIM 1

Chen (fig 1,fig2,fig 3, column 2 lines 40-44,column 4 line 40) discloses magnetic memory element, comprising: a plurality of magnetic layers, at least one of the plurality of magnetic layers (fig 3 layer 11,13) having a perpendicular magnetic anisotropy component and

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comprising a current-switchable magnetic moment; and at least one barrier layer(fig 3 layer 12) formed adjacent to the plurality of magnetic layers.

Noted that since Chen discloses a MRAM magnetic spin memory device that use current switching (column 2 line 2) to switch the magnetic moment of its cell. Noted that as set forth in paragraph 5 of the Office Action , the limitations in the preamble are not accorded any patentable weight. Noted that for most MRAM the switching effect is due to the switching of the write current of the word line either indirectly through the magnetic moment or directly through the MRAM stack.

FIG. 1*FIG. 2*10

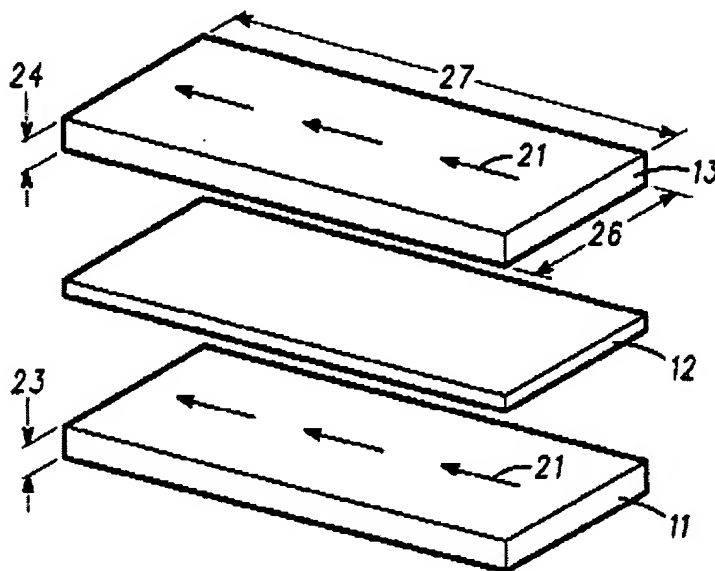


FIG. 3

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this office action.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

9. Claim 1, 8 are rejected under 35 U.S.C. 102(e) as being anticipated by Ikeda et al. (U.S. Patent 5,917,749)

REGARDING CLAIM 1

Ikeda (in the abstract , in fig 9) discloses a magnetic memory element, comprising: a plurality of magnetic layers (fig 9 layer 355,354), at least one of the plurality of magnetic layers having a perpendicular magnetic anisotropy component (the abstract lines 3-4) and comprising a current-switchable magnetic moment; and at least one barrier layer (fig 9 layer 105) formed adjacent to the plurality of magnetic layers. Noted that Ikeda discloses a tunneling magnetoresistive device (column 7 lines 5-6) therefore it is inherently a spin current switchable magnetic memory device. Noted that for most MRAM the switching effect is due to the switching of the write current of the word line either indirectly through the magnetic moment or directly through the MRAM stack.

REGARDING CLAIM 8

Ikeda (in the abstract , in fig 9) discloses a magnetic memory element comprising: first and second leads (fig 9 layer 332 layer 358) ; and a pillar formed between said first and second leads, said pillar including said at least one barrier layer (fig 9 layer 105) and at least one magnetic layer (fig 9 layer 354 or 355) of said plurality of magnetic layers.

Noted that for the rejection of Claim 1 and 8 under the Ikeda reference, as set forth in paragraph 5 of the Office Action , the limitations in the preamble are not accorded any patentable weight.

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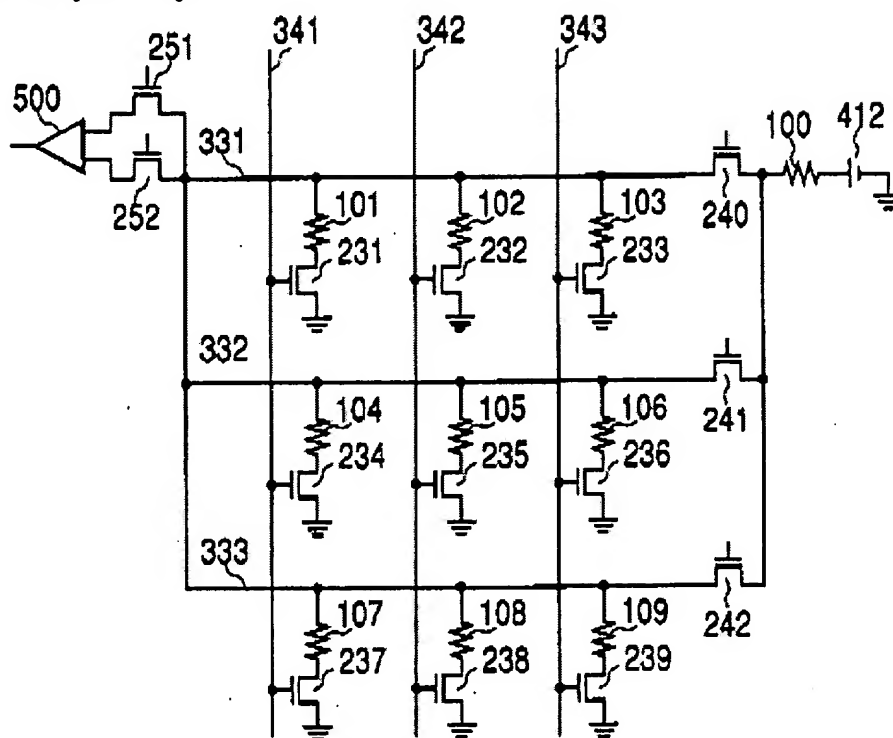
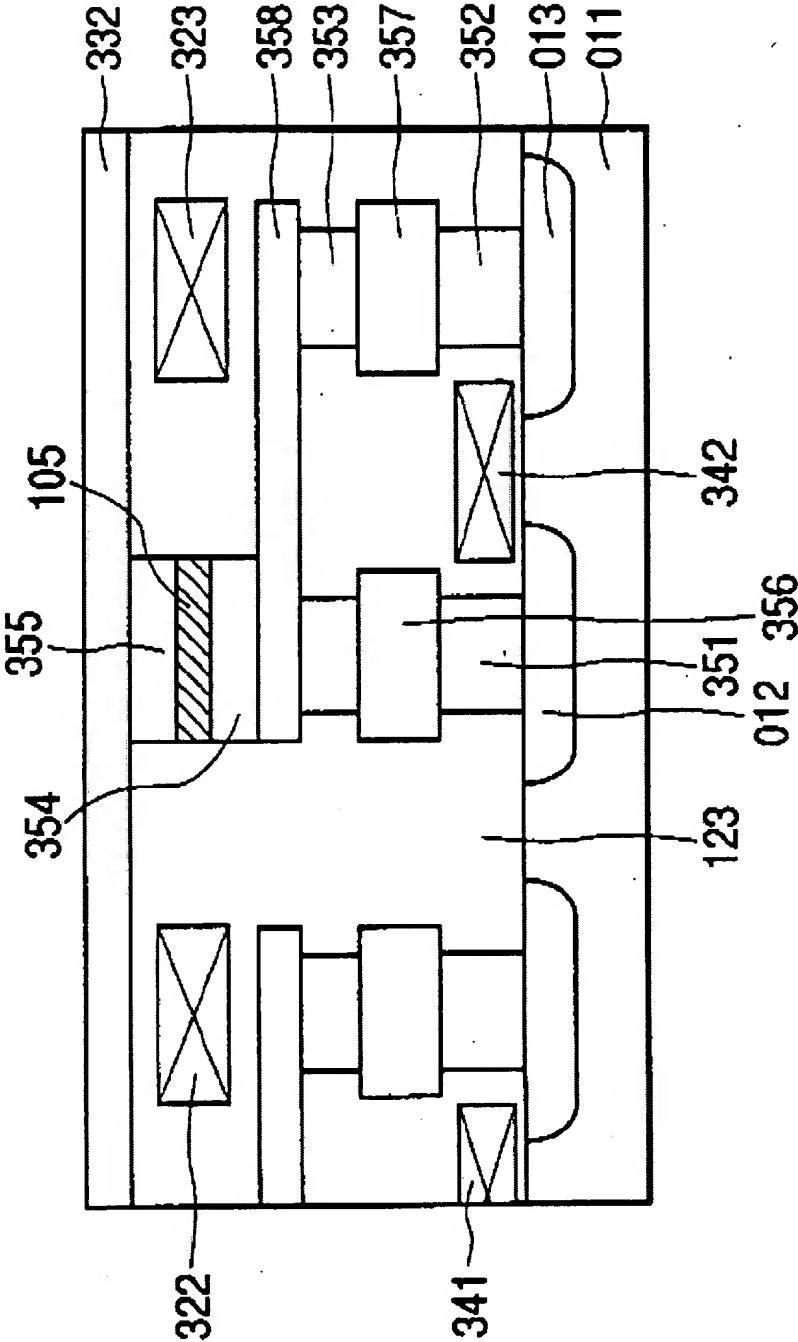
FIG. 8

FIG. 9



Claim Rejections - 35 USC § 103

10. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claim 12 is rejected under 35 U.S.C. 103(a) is rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda (U.S. patent 6,721, 201) in view of Nakada et al. (US patent 6,341,053).

With regard to claim 12, as set forth in the rejection of claim 8, Ikeda (the abstract, fig 9) discloses all the invention except for a lead or electrode that includes a magnetic layer. Nakada, however, (in fig 1, column 4 line 58-65) discloses a lead (layer 12) that can includes a magnetic layer 13.

It would have been obvious to one of ordinary skill in the art the time the invention was made to incorporate a lead layer (layer 12) that can includes a magnetic layer as taught by Nakada into the Ikeda device and come up with the invention of claim 12 of the present Application

The rationale is as the following:

A person skilled in the art at the time the invention was made would have been motivated to reduce the signal to noise ratio (column 2 lines 14-15) of the Ikeda device as suggested by Nakada.

12. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

13. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

CONCLUSION

14. The prior arts made of record and not relied upon are considered pertinent to applicant disclosure: Sun (US patent 6,130,814) discloses a current induced magnetic switching device and memory includes the same.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790.

The examiner can normally be reached on Monday-Friday 9:30am-6: 30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andy Huynh can be reached at 571-272-1781.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.


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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval [PAIR] system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thinh T. Nguyen



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Andy Huynh
Primary Examiner
Art Unit 2818